AT-XPSR-AO

10Gbs XFP Transceiver

Features

- Duplex LC connector
- Support hot-pluggable
- Metal with lower EMI
- Excellent ESD protection
- VCSEL Transmitter and PIN Receiver
- Distance up to 300m on 50/125um MMF (OM3)
- Single 3.3V power supply and Low power dissipation <0.8W
- GR-253-CORE compliant
- RoHS Compliant and Lead-Free
- Compliant with IEEE 802.3ae
- Compliant with XFP MSA
- Digital diagnostic compatible with SFF-847 Rev11.0

Applications

- 10GBASE-SR/SW
- 10G Fibre Channel
- Other optical link

Product Description

AddOn Computer's AT-XPSR-AO XFP transceivers are compatible with the XFP Multi-Sourcing Agreement (MSA). The XFP transceivers are high performance, cost effective modules supporting dual data-rate of 10Gbps and support distance up to 300m with MMF.

AddOn Computer's XFP transceivers are RoHS compliant and lead-free

Regulatory Compliance

- ESD to the Electrical PINs: compatible with MIL-STD-883E Method 3015.7.
- ESD to the Duplex LC Receptacle: compatible with IEC 61000-4-2 GR-1089-CORE.
- Immunity compatible with IEC 61000-4-3.
- EMI compatible with FCC Part 15 Class B EN55022 Class B (CISPR 22B) VCCI Class B.
- Laser Eye Safety compatible with FDA 21CFR 1040.10 and 1040.11 EN60950, EN (IEC) 60825-1,2.
- RoHS compliant with 2002/95/EC 4.1&4.2 2005/747/EC.

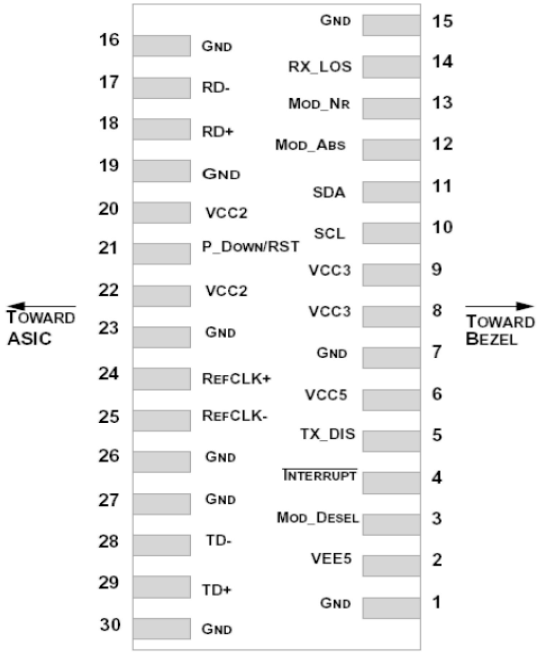
Pin Descriptions

Pin	Symbol	Name/Descriptions	Ref.
1	GND	Module Ground	
2	Vee5	(not required)	
3	MOD_DESEL	Module De-select; When Held low allows the module to respond to 2-wire serial interface. LVTTL-I	
4	/INTERRUPT	Interrupt; Indicates presence of an important condition which can be read via the 2-wire serial interface. LVTTL-O	2
5	TX_DIS	Transmitter Disable. Logic1 indicates laser output disabled, LVTTL-I	
6	VCC5	+5V Power Supply (Not required)	3
7	GND	Module Ground	1
8	VCC3	+3.3V Power Supply	
9	VCC3	+3.3V Power Supply	
10	SCL	2-Wire Serial Interface Clock. LVTTL-I	2
11	SDA	2-Wire Serial Interface Data Line. LVTTL-I/O	2
12	MOD_Abs	Indicates Module is not present. Grounded in the Module. LVTTL-O	2
13	MOD_NR	Module Not Ready; Indicating Module Operational Fault. Open-collector. LVTTL-O	2
14	RX_LOS	Loss of Signal indication. Logic 1 indicates loss of Signal. Open-collector. LVTTL-O	2
15	GND	Module Ground	1
16	GND	Module Ground	1
17	RD-	Receiver Inverted Data Output. CML-O	
18	RD+	Receiver Non-Inverted Data Output. CML-O	
19	GND	Module Ground	1
20	VCC2	+1.8V Power Supply (Not required).	3
21	P_DOWN/RST	Power down; When high, requires the module to limit power consumption to 1.5W or below. 2-Wire serial interface must be functional in the low power mode. LVTTL-I Reset; The falling edge initiates a complete reset of the module including the 2-wire serial interface, equivalent to a power cycle. LVTTL-I	
22	VCC2	+1.8V Power Supply (Not required)	3
23	GND	Module Ground	1
24	REFCLK+	Reference Clock (Not required)	
25	REFCLK-	Reference Clock (Not required)	
26	GND	Module Ground	1
27	GND	Module Ground	1
28	TD-	Transmitter Inverted Data Input. CML-I	
29	TD+	Transmitter Non-Inverted Data Input. CML-I	
30	GND	Module Ground	1

Notes:

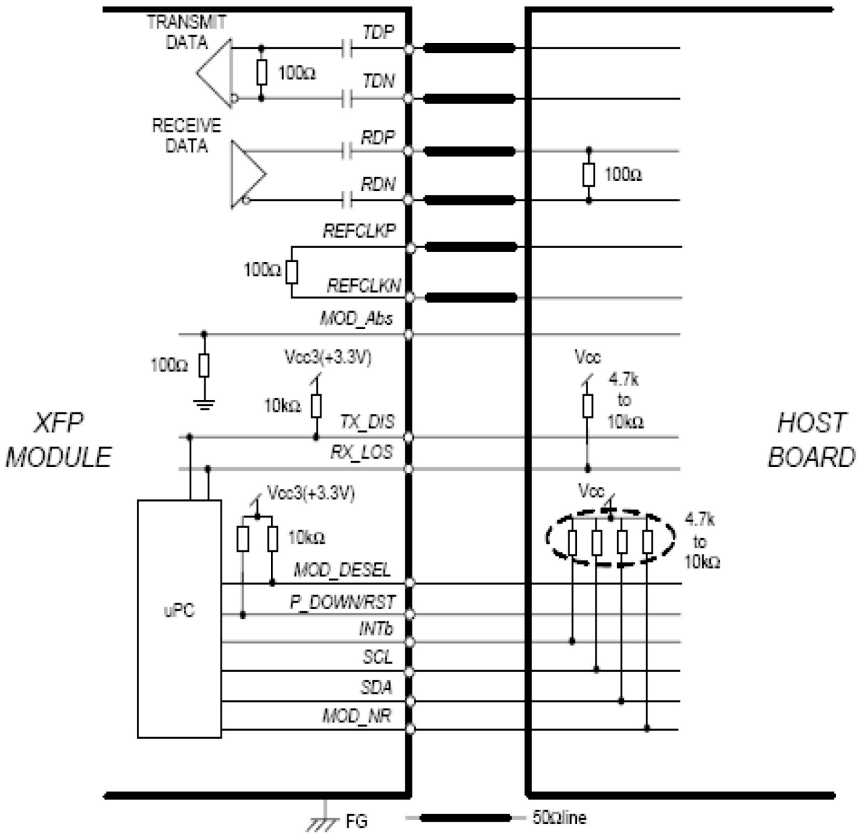
1. Module ground pins GND are isolated from the module case and chassis ground within the module.
2. Open collector; should be pulled up with 4.7K-10Kohms to a voltage between 3.15V and 3.6V on the host board.
3. The pins are open within module.

Parameter	State	Conditions
RS0	Low	Rx signally rate less than or equal to 4.25GBd.
	High	Rx signally rate great than 4.25GBd.
RS1	Low	Tx signally rate less than or equal to 4.25GBd.
	High	Tx signally rate great than 4.25GBd.



Pin-out of connector Block on Host board

Recommend Circuit Schematic



Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Maximum Supply Voltage	Vcc	-0.5	4.0	V
Storage Temperature	TS	-40	85	°C
Operating Humidity	RH	5	95	%

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit
Power Supply Voltage	Vcc	3.13	3.30	3.47	V
Power Supply Current	Icc			475	mA
Case Operating Temperature – Commercial	Tc	-5		70	°C
Case Operating Temperature – Industrial	Tc	-40		85	°C
Data Rate		9.95	10.3	10.5	Gbps
50/125µm MMF (OM3)	Lmax			300	m

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Differential data input swing	Vin, pp	120	600	850	mV	
Input differential impedance	Zin	90	100	110	Ω	
TX Disable-High		2.0		Vcc+0.3	V	
TX Disable-Low		Vee-0.3		0.8	V	
TX Fault-High		2.0		Vcc+0.3	V	
TX Fault-Low		Vee-0.3		0.8	V	
Receiver						
Differential data output swing	Vout, pp	300	600	850	mV	
Output Differential Impedance	Zin	90	100	110	Ω	
LOS-High		2.0		Vcc+0.3	V	
LOS-Low		Vee-0.3		0.8	V	

Optical Characteristics

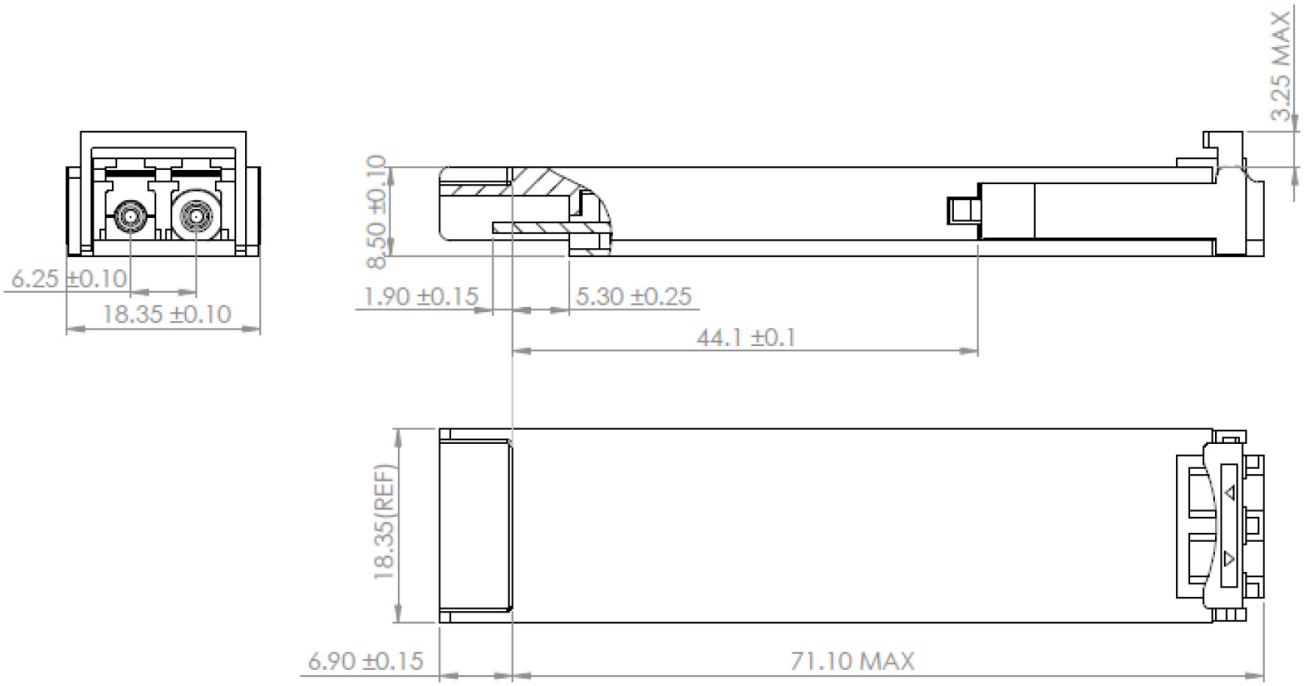
Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Output Opt. Power		-7.3		-1	dBm	1
Optical modulation amplitude	P(OMA)	-4.3	-2		dBm	
Extinction Ratio	ER	3			dB	
Transmitter and Dispersion Penalty	TDP			3.9	dB	
Average Launch power OFF TX	Poff			-30	dBm	
Optical Wavelength	λ	840		860	nm	
Optical Return Loss Tolerance	ORLT			12	dB	
Relative Intensity Noise	RIN			-128	dB/Hz	
Eye Diagram	Compatible with IEEE 802.3-2005					
Receiver						
Overload		1			dBm	1
Optical Center Wavelength	λC	840		860	nm	1
LOS De-Assert	LOSD			-13	dBm	1
LOS Assert	LOSA	-30			dBm	

LOS Hysteresis		0.5		5	dB	
Receiver Sensitivity	PIN			-9.9	dBm	
Receiver Sensitivity @ FEC rate	PIN-OMA			-11.1	dBm	

Notes:

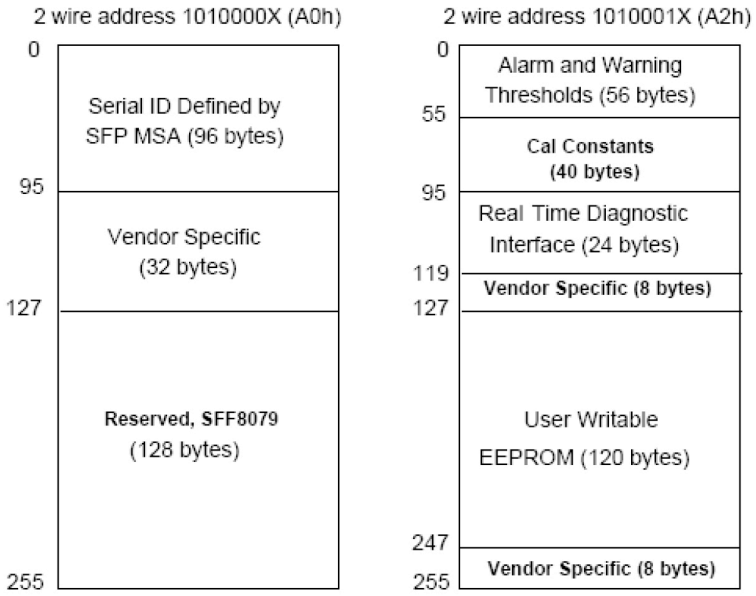
1. BER ≤ 10^{-12}@PRBS231-1 at 10.3125Gb/s.

Mechanical Specifications



EEPROM Information

EEPROM memory map specific data field description is as below:



Digital Diagnostic Monitoring Interface

The digital diagnostic monitoring interface also defines another 256-byte memory map in EEPROM, which makes use of the 8 bi address 1010001X (A2h). The monitoring specification of this product is described in this table.

Parameter	Range	Accuracy	Calibration
Temperature	-5°C to 85°C	±3°C	Internal
Voltage	2.97V to 3.63V	±3%	Internal
Bias Current	0mA to 100mA	±10%	Internal
TX Power	-7.3dBm to -1dBm	±2dB	Internal
RX Power	-12dBm to -1dBm	±2dB	Internal

Contact Information

AddOn Computer, Inc. is a leading supplier of Memory Upgrade, Network Transceivers and Network connectivity products to Channel Partners, Resellers and OEMs, with more than seventeen years of direct industry experience. AddOn Computer has been the exclusive supplier to Ingram Micro's "Memory Upgrades" program for the past nine years.

AddOn Computer maximizes profitable opportunities for our partners. Our ability to source product worldwide, ensures that our pricing will always be competitive. Offering turnkey solutions, AddOn Computer has forged a reputation as a solutions provider, delivering high quality, cost effective product in a timely and reliable manner.

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